P19894.A04

Please amend claim 14 as follows (a marked up copy of the amended claim is attached hereto):

14.   A method of preparing a program for a punch press, wherein

said punch press is provided with a punch supporting member that supports a

plurality of punches and a die supporting member that supports a plurality of dies

corresponding to said punches;

identification media for identifying each tool are attached respectively on each of

said punches and each of said dies;

said punch press is provided with a punch identification medium reader for reading

out a punch identification information from a punch identification medium attached to

said punch and a die identification medium reader for reading out a die identification

information from a die identification medium attached to said die;

wherein said program preparing method prepares said program by feeding a punch

identification information and a die identification information from said respective

identification medium readers back to an automatic programming apparatus and by

allotting a punch existing on said punch supporting member and a die existing on said die

supporting member to a workplace region to be processed such that a total number of

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replacements of punches in said punch supporting member and dies in said die supporting member is minimized.

Please add claims 21- 38 for consideration by the Examiner.

--- 21. The method of preparing a program for a punch press of claim 14, wherein said program preparing method further maximizes an efficiency.

22. The method of preparing a program for a punch press of claim 21, wherein the maximized efficiency of the program preparing method is determined by minimizing the total number of punch replacements and die replacements offset by maximizing a measure of the flatness of the finished surface.

23. The method of preparing a program for a punch press of claim 21, wherein the maximized efficiency of the program preparing method is determined by minimizing the total number of replacements of punches and dies offset by minimizing a tact time.

24. The method of preparing a program for a punch press of claim 21, wherein the maximized efficiency of the program preparing method is determined by minimizing the total number of replacements of punches and dies offset by minimizing the number of punches required to obtain a fine finish.

25. A method of preparing a program for a punch press, wherein the punch press includes: a punch supporting member that supports a plurality of punches and a die supporting member that supports a plurality of dies corresponding to the punches, identification media for identifying each tool attached respectively on each of the punches and each of the dies, and a punch identification medium reader for reading out a punch identification information from a punch identification medium attached to said punch and a die identification medium reader for reading out a die identification information from a die identification medium attached to said die;

said program preparing method comprising:

feeding a punch identification information and a die identification information from the respective identification medium readers back to an automatic programming apparatus; and

allotting a punch existing on the punch supporting member and a die existing on the die supporting member to a workplace region to be processed such that a total time for replacing punches in the punch supporting member and dies in the die supporting member is minimized.

26. The method of preparing a program for a punch press of claim 25, wherein said program preparing method further maximizes an efficiency.

27.   The method of preparing a program for a punch press of claim 26, wherein the maximized efficiency of the program preparing method is determined by minimizing the total time for replacing punches and dies offset by maximizing a measure of the flatness of the finished surface.

28.   The method of preparing a program for a punch press of claim 26, wherein the maximized efficiency of the program preparing method is determined by minimizing the total time for replacing punches and dies offset by minimizing a tact time.

29.   The method of preparing a program for a punch press of claim 26, wherein the maximized efficiency of the program preparing method is determined by minimizing the total time for replacing punches and dies offset by minimizing a number of punches required to obtain a fine finish.

30.   A method of preparing a program for a punch press, wherein the punch press includes: a punch supporting member that supports a plurality of punches and a die supporting member that supports a plurality of dies corresponding to the punches, identification media for identifying each tool attached respectively on each of the punches and each of the dies, and a punch identification medium reader for reading out a punch identification information from a punch identification medium attached to the punch and a die identification medium reader for reading out a die identification information from a die identification medium attached to the die;

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said program preparing method comprising:

feeding a punch identification information and a die identification information from the respective identification medium readers back to an automatic programming apparatus; and

allotting a punch existing on the punch supporting member and a die existing on the die supporting member to a workplace region to be processed such that a total number of punches required to punch a desired hole is minimized.

31. The method of preparing a program for a punch press of claim 30, wherein said program preparing method further maximizes an efficiency.

32. The method of preparing a program for a punch press of claim 31, wherein the maximized efficiency of the program preparing method is determined by maximizing the punch size of the tools used offset by maximizing a measure of the flatness of the finished surface.

33. The method of preparing a program for a punch press of claim 31, wherein the maximized efficiency of the program preparing method is determined by maximizing the punch size of the tools used offset by minimizing a tact time.

34. The method of preparing a program for a punch press of claim 31, wherein the maximized efficiency of the program preparing method is determined by maximizing

the punch size of the tools used offset by minimizing a number of punches required to obtain a fine finish.

35. A computer readable medium storing a computer program that allocates punches for a punch supporting member that supports a plurality of punches and dies for a die supporting member that supports a plurality of dies corresponding to the punches by:

reading out a punch identification information from a punch identification medium attached to each punch, with a punch identification medium reader, and reading out a die identification information from a die identification medium attached to each die, with a die identification medium reader;

feeding a punch identification information and a die identification information from said respective identification medium readers back to an automatic programming apparatus;

allotting a punch existing on the punch supporting member and a die existing on the die supporting member to a workplace region to be processed such that an efficiency is maximized.

36. The computer readable medium of claim 35, wherein the maximized efficiency is determined by minimizing the total number of punch replacements and die replacements.